Georgia Climate Project

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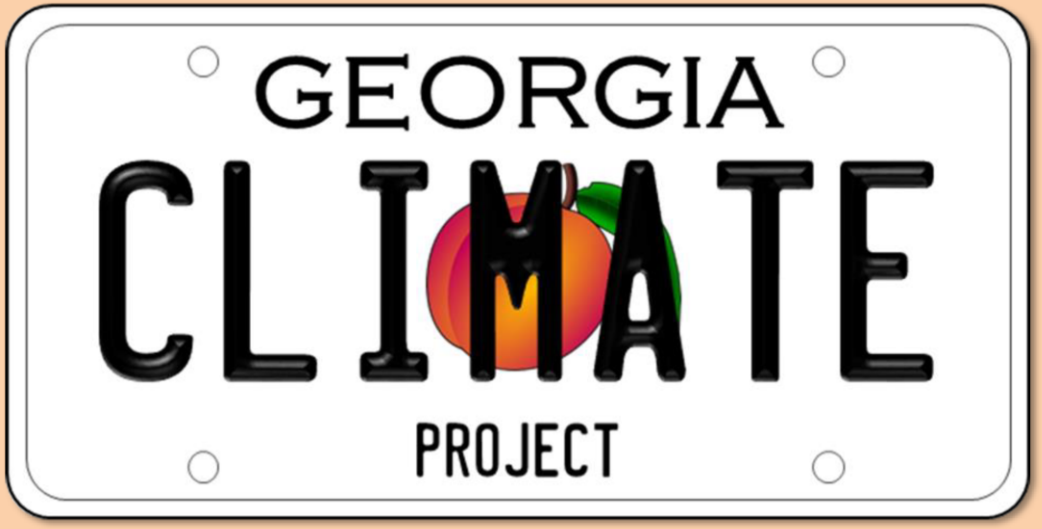
Georgia Environmental Conference
Jekyll Island, Georgia
August 25, 2017



A multi-year effort by a state-wide consortium to support effective, science-based climate action in Georgia.

Choosing our Energy Future: 2015 & 2016 Town Halls

https://cepl.gatech.edu/workshops/COEF/choosing-our-energy-future

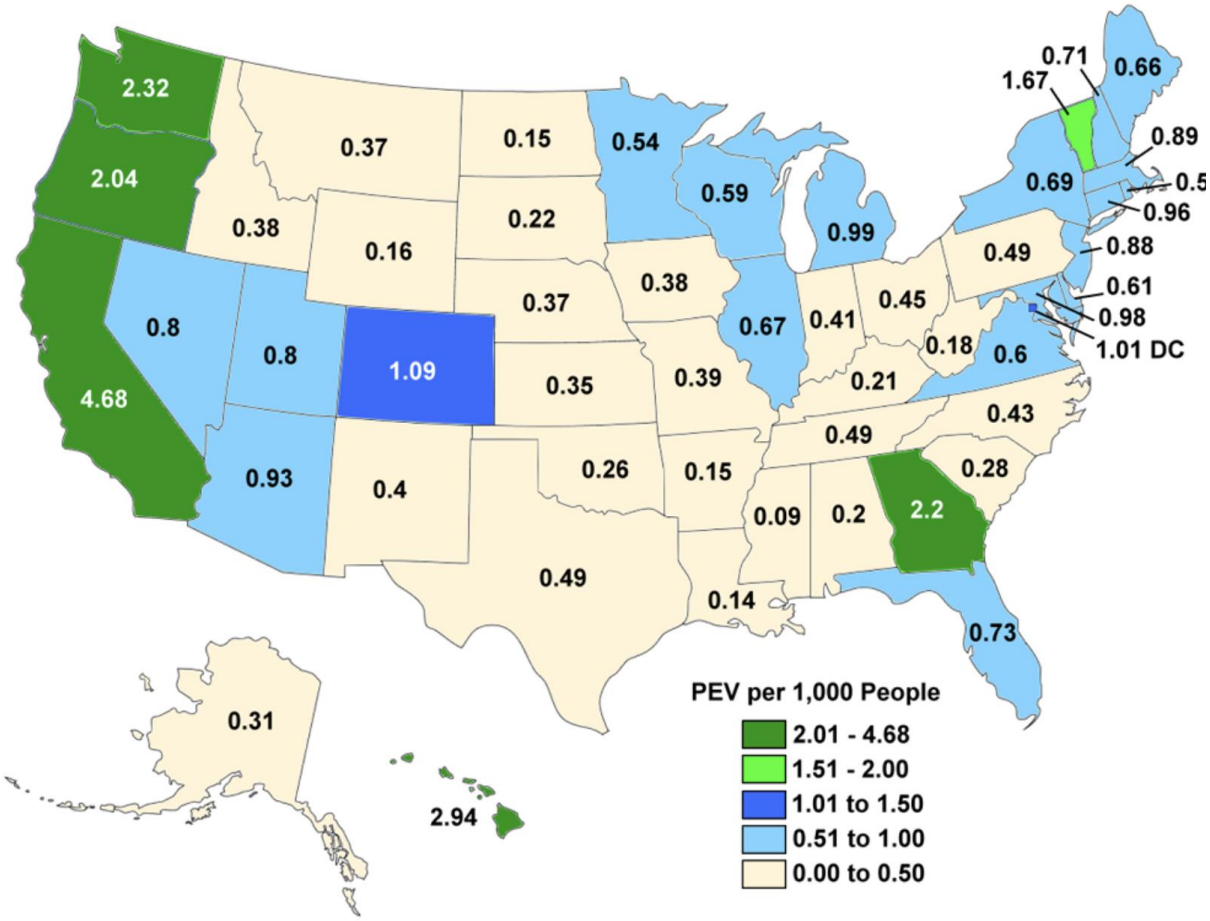
Café-style conversations:

- Maximizing innovation, economic development and jobs
- Exploring environmental benefits and co-benefits
- Ensuring equity and environmental justice
- Options for design of a market-based system
- Multi-state coordination options, pros, and cons

Georgia Leadership Initiatives & Challenges

- Electric vehicles
- Utility-scale solar
- Atlanta's 100% clean energy goal
- Next new nuclear plant (?)
- Energy benchmarking in Atlanta
- Energy burdens

Georgia is the Only State in the Southeast with >2 EVs per 1,000 People

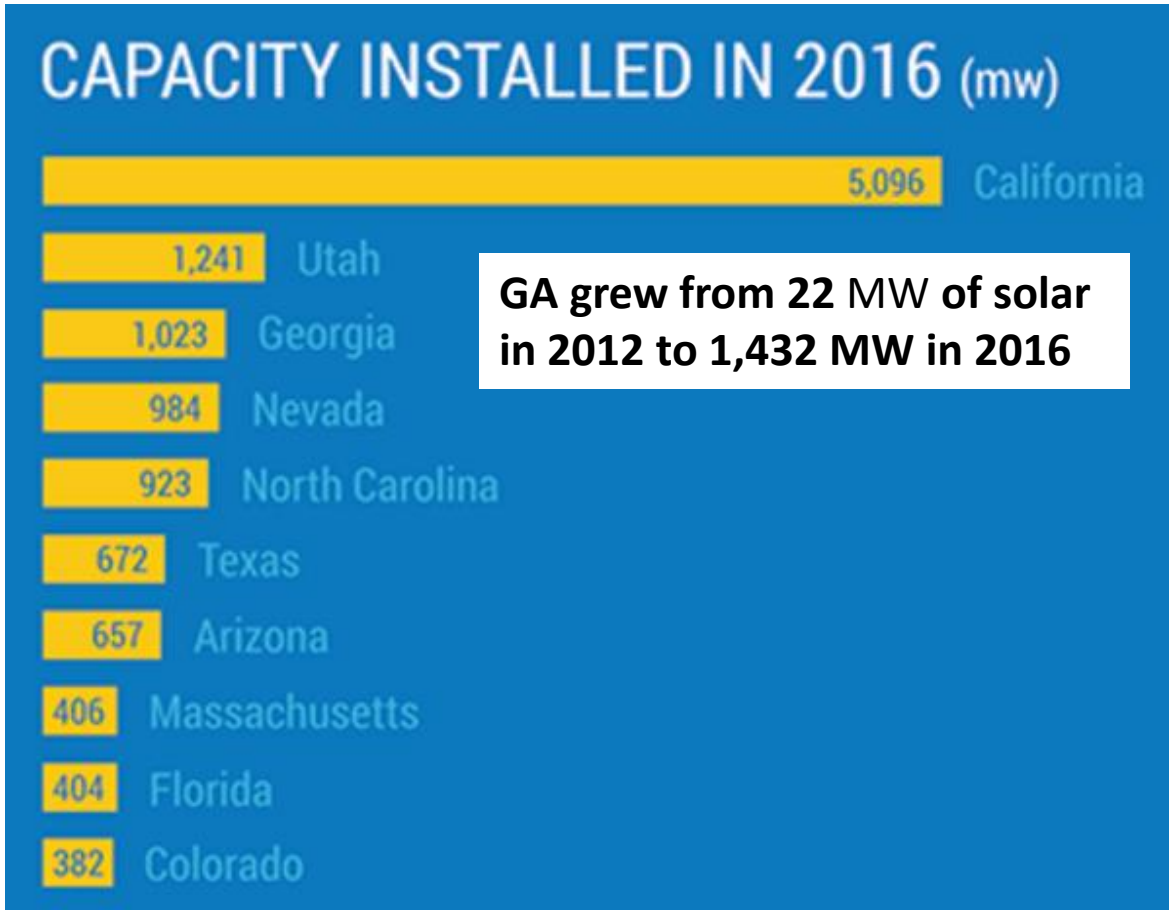


Georgia also plans to lead in "Vehicles-to-Grid" and EV battery sharing

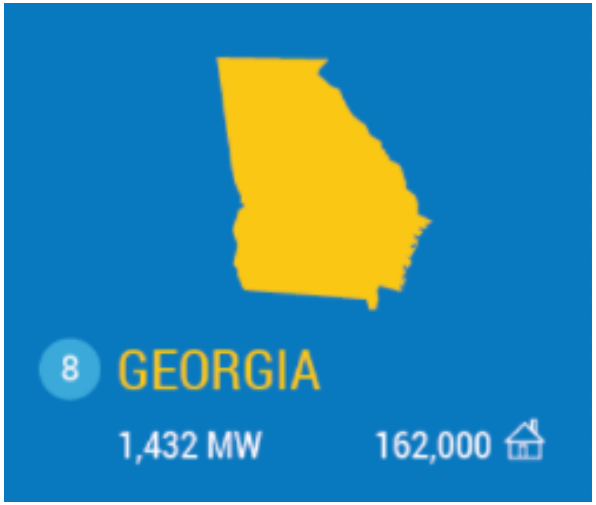
But the market for EVs in Georgia has stalled with the termination of the state tax rebate (despite Georgia Power's new support for EV re-charging stations).

Georgia was #3 in New Solar in 2016

Atlanta's 100% Clean Energy Goal

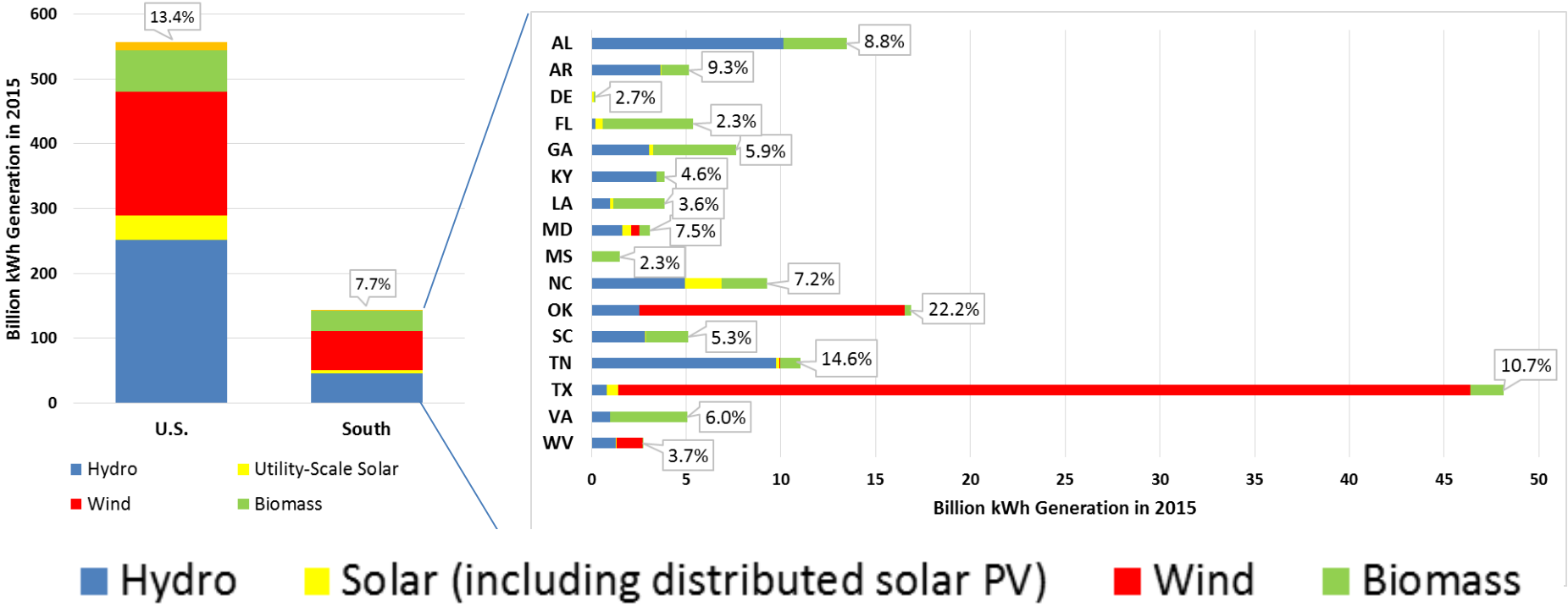


GA grew from 22 MW **of solar in 2012 to 1,432 MW in 2016**



Source: https://www.seia.org/research-resources/top-10-solar-states

The 100% Clean Energy Goal for Atlanta Targets 2035, b/c there's a way to go



Source: *U.S. Energy Information Administration, Electric Power Monthly, Table 1.1A, 1.2C-E, 6.2B.*
State level data is also available at https://www.eia.gov/electricity/data/state/
Note: *Distributed generations are estimated. Utility-scale generations are based on reported generation data.*

Georgia is Home to the Only U.S. New Nuclear

BRIEF

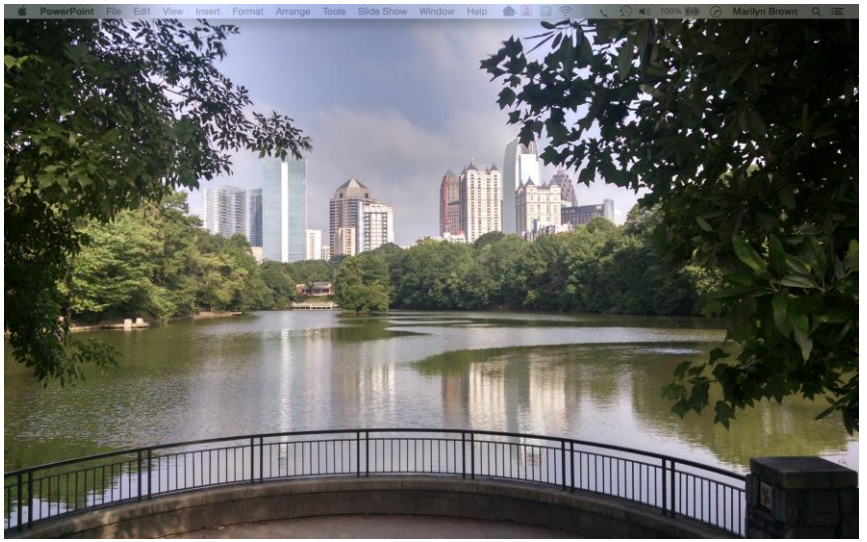
Vogtle nuke cost could top $25B as decision time looms

By **Gavin Bade** • Aug. 3, 2017

- **The total cost of the Vogtle nuclear plant expansion is likely to exceed $25 billion.**

Energy Benchmarking of Commercial Buildings in Atlanta

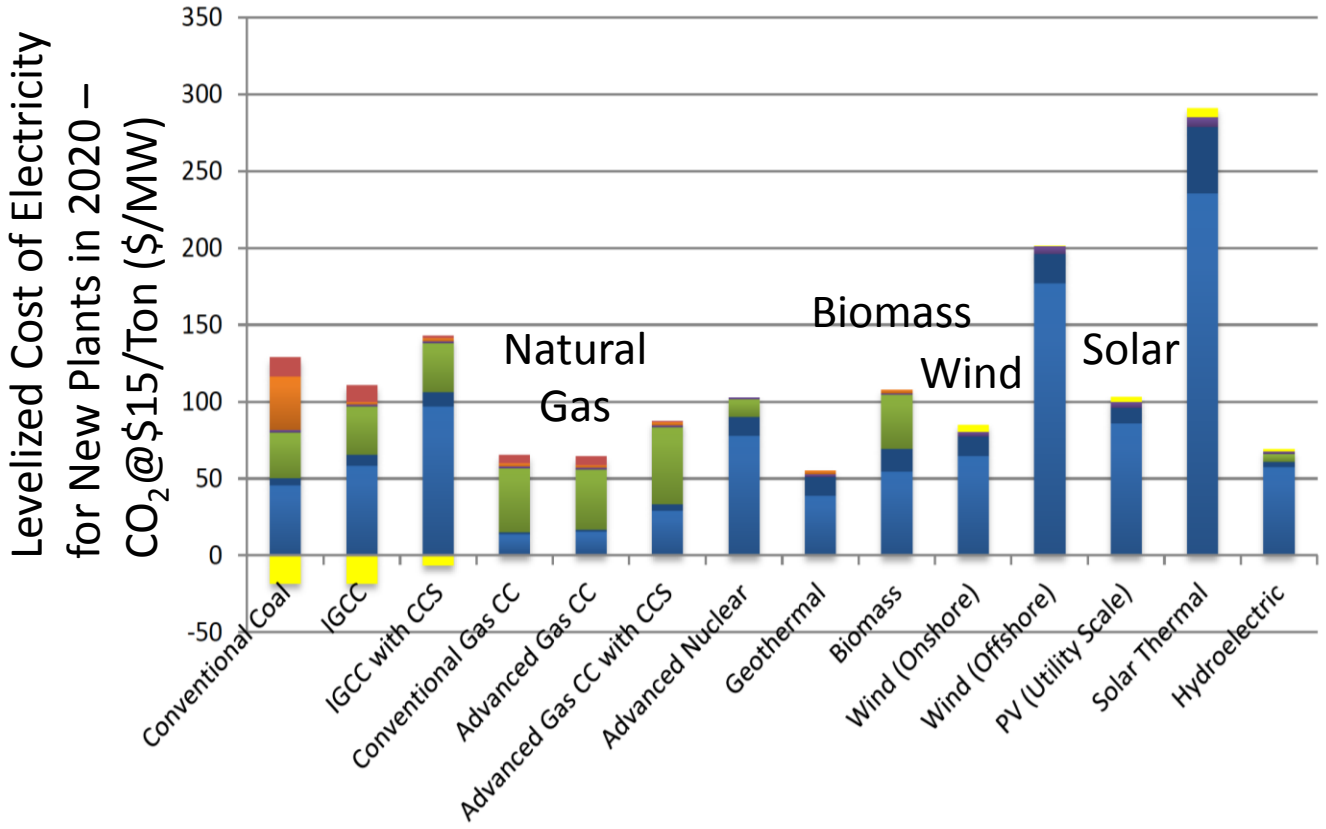
- Atlanta's skyline has long been a symbol of prosperity. What you can't see is that these same buildings are some of the city's largest energy consumers and polluters.
- The city has adopted an energy benchmarking ordinance that will help redraw this energy and environmental profile.
- As a result, high performance buildings will be worth more, and tenants will be empowered.



But What about Households? The Energy Burden in the South is High

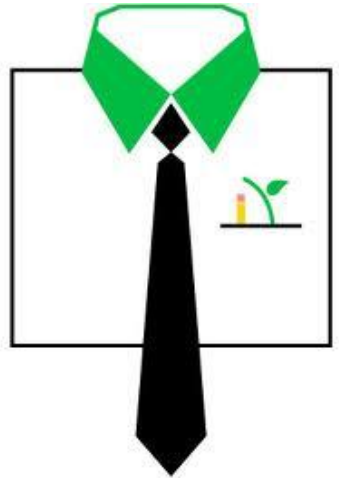
- Atlanta has the fourth highest median energy burden of any city in the U.S. at 5.0%, just less than Memphis at 6.2%, Birmingham at 5.3%, and New Orleans at 5.3%.
- Versus 3.5% average for all U.S. households.
- Low-income households in Atlanta have an average energy burden of 10.2%, the third highest of any urban area in the U.S.
- Low-income Atlanta residents in multi-family housing have particularly high energy burdens, averaging 15.7%.
- This data illustrates a stark contrast with the U.S. Department of Health and Human Services classification of energy burdens above 6% as “unaffordable”.

It's Hard to Compete with Natural Gas (Solar is Already Cheaper than Nuclear): But Where is Energy Efficiency?



Source: National Academies. 2016. The Power of Change: Innovation for Development and Deployment of Increasingly Clean Electric Power Technologies

Changing the Narrative



The U.S. has about 75,000 jobs in coal mining. Automation has had a major impact on this workforce: autonomous trucks work the Powder River Basin….

See: 30-minute CNN discussion: 175,000 live “hits”

https://www.facebook.com/cnn/videos/10156318782866509/?hc_ref=NEWSFEED

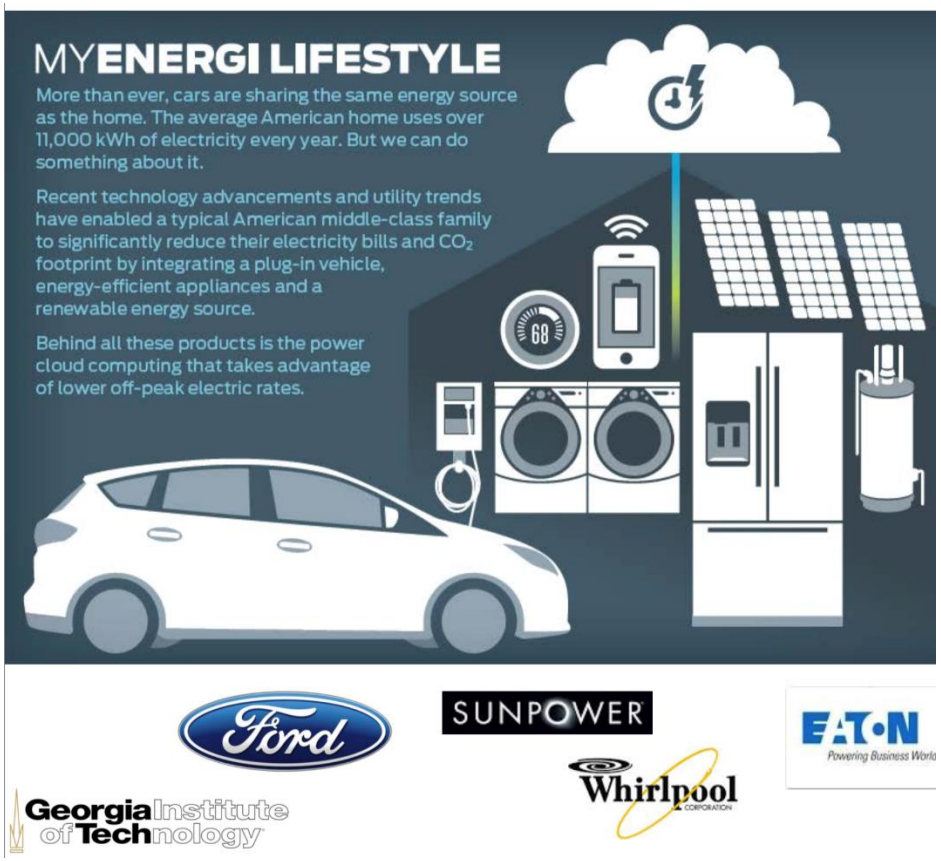
Energy Efficiency Jobs

Nearly 1 million U.S. workers spend a majority of their time installing energy-efficient equipment and services.

~66,200 Georgians work in energy efficiency related businesses.

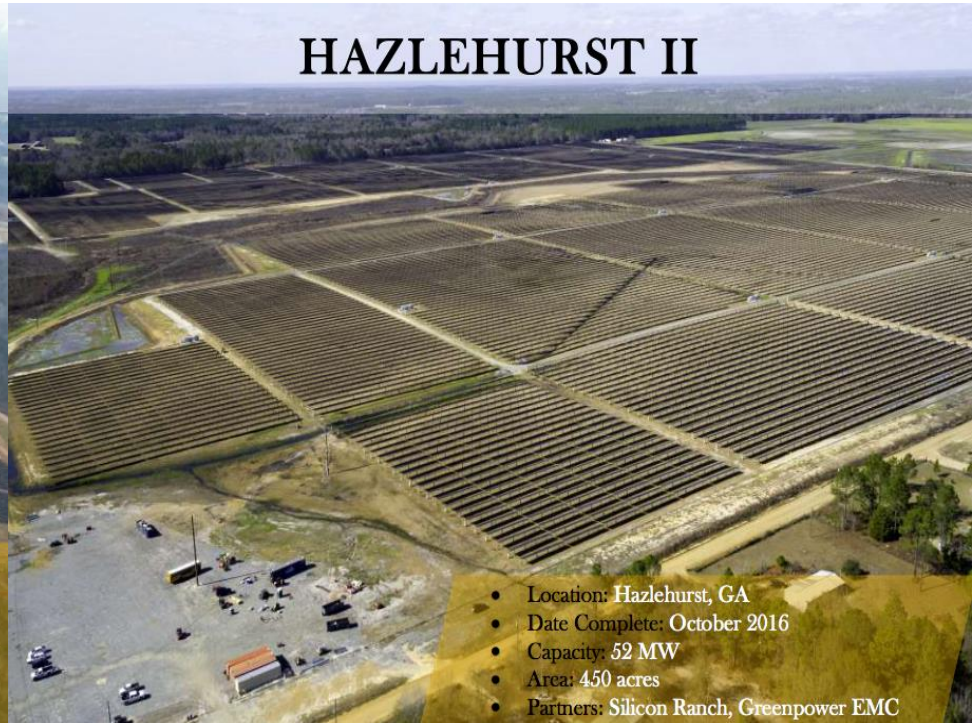
Technologies include:

- Advanced windows & insulation
- High efficiency HVAC
- Smart thermostats
- Efficient lighting and controls
- Energy Star appliances, etc.



Source: Environmental Entrepreneurs (E2) and E4 The Future. 2016. *Energy Efficiency Jobs in America*.

Solar Jobs



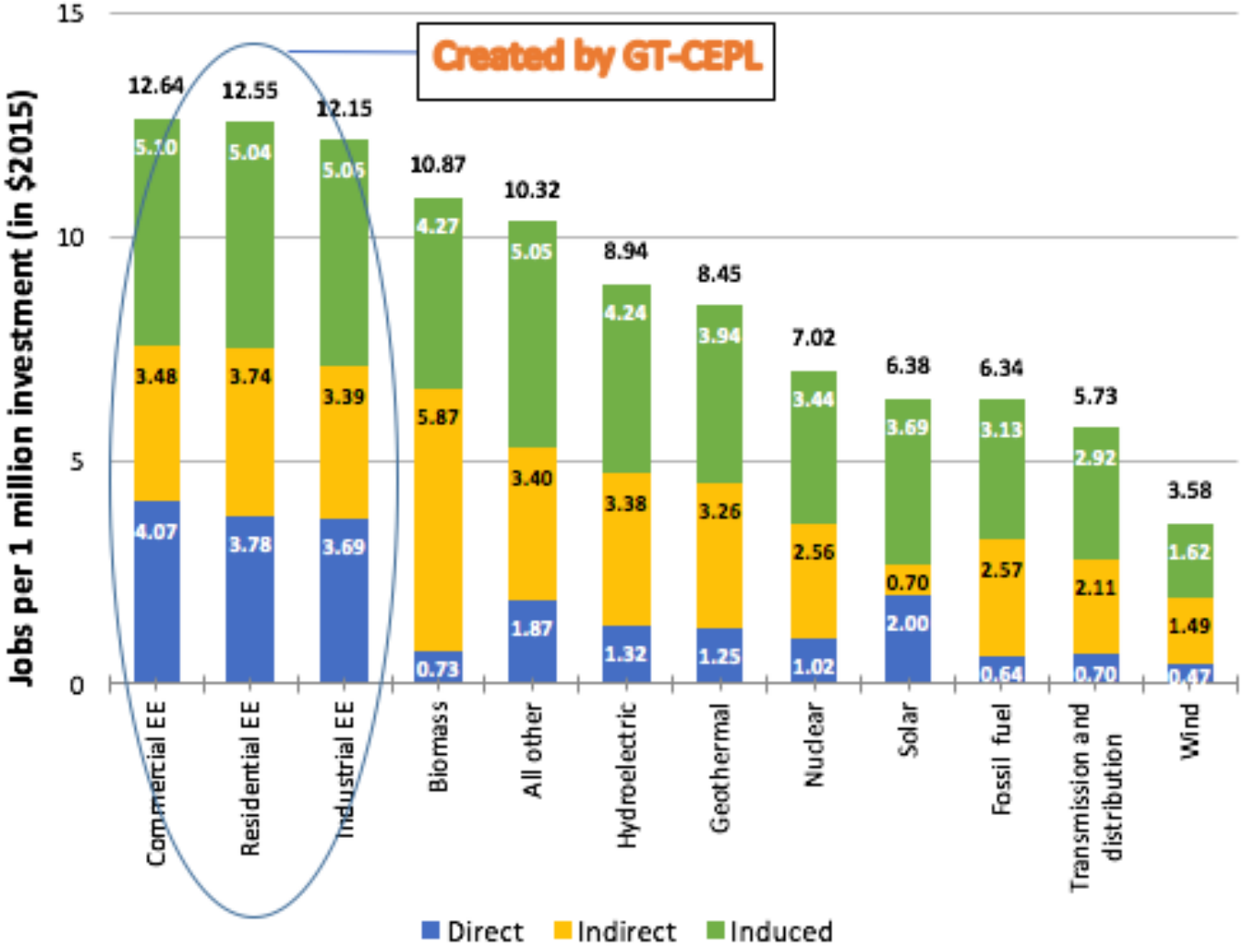
- The U.S. has about 260,000 workers in the solar industry
- (3,900 in Georgia in 2016).
- One out of every 50 new jobs added in the U.S. in 2016 was created by the solar industry.

Source: The Solar Foundation. 2017. *National Solar Jobs Census 2016*, available at: SolarJobsCensus.org.

Georgia Tech

Job Coefficients for Different Types of Energy Investments

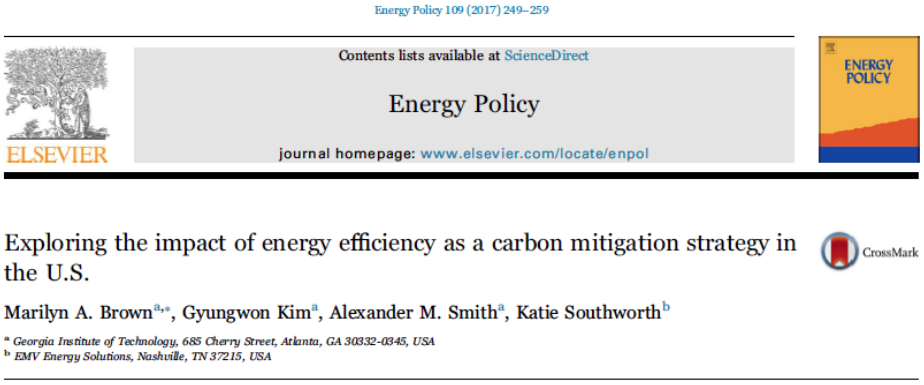
IGERT
Energy Materials & Policy



Climate policies can cut CO_2 & reduce energy burdens

Types of Policies studied:

- Carbon caps: "Clean Power Plan"
- Carbon taxes: "Carbon Dividends Plan"
  - redistribute taxes on a per capita basis vs
  - redistribute per source of CO_2.



Energy Policy 109 (2017) 249–259

Contents lists available at ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Exploring the impact of energy efficiency as a carbon mitigation strategy in the U.S.

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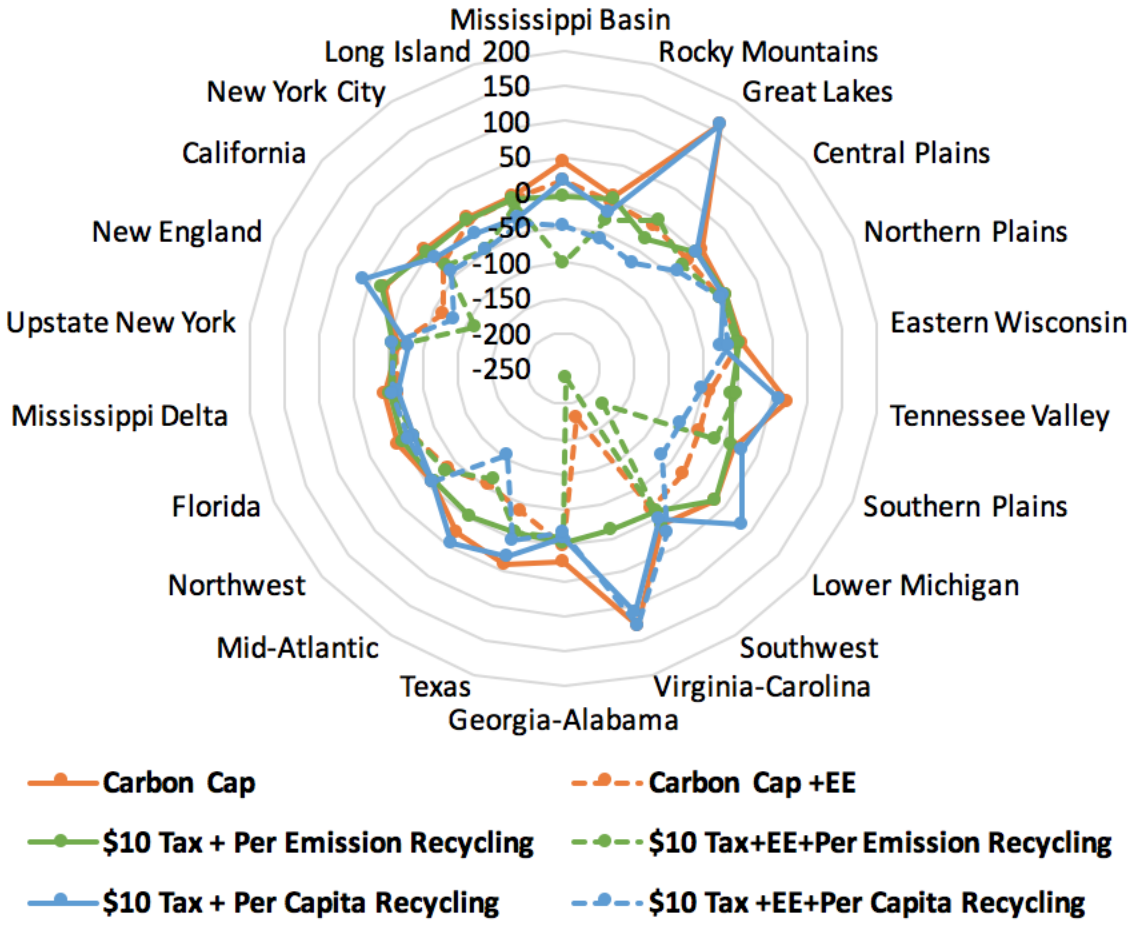
Supply & Demand Policies can Work Well Together:

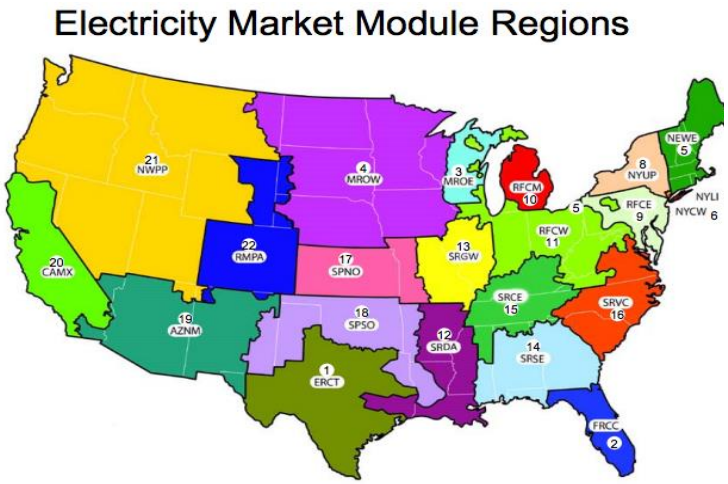
Climate Policy:	Cost per ton of CO_2 Reduction
Carbon Cap	$39.13
Carbon Cap + EE	-$26.30
$10 Carbon Tax	$8.11
$10 Carbon Tax + EE	-$28.63

Cost of climate policy = utility resource costs + EE costs + administrative costs – carbon tax recycling (in $2013)

Climate policy will have winners and losers, so policy design really matters

Climate policy costs per capita across regions in 2030





Estimated impacts in Georgia-Alabama range from a cost of ~$25 per capita to a benefit of ~$250 per capita.

For More Information

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